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DORS® 750

BANKNOTE COUNTER



USER MANUAL

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**READ THIS MANUAL CAREFULLY
BEFORE OPERATION START!**

INTRODUCTION

Dear Customer, we would like to thank you for selection of the **DORS 750** – the banknote counter able to determine authentication of banknotes and their denomination.

The banknote counter **DORS 750** (hereafter counter) is developed by **KB DORS LLC**, Moscow Russia, and manufactured by **DORS Industries (China) Ltd**, Shilong Business Center, Shilong Information Industrial Park, Building 17, the city of Guangdong, the province of Guangdong, China.

The counter is intended for counting and batching of US dollars, Euro and other world currencies together with recognition of their authenticity, denominations and amount. Authentication is made by comparing the data obtained during the banknote detection in the ultraviolet, infrared and visible ranges with the reference data stored in the counter memory.

Specifications

Hopper capacity, not more than.....	500 banknotes;
Stacker capacity, not more than.....	150 banknotes;
Banknote counting speed (+/-15%).....	600/1000/1500 banknotes per minute;
Banknote size.....	117–180 mm (width), 58–90 mm (length), 0,05–0,2 mm (thickness);
Batch select.....	1–999;
Banknotes feed system.....	Roller system of a friction type;
Counting sensor.....	Line of sensitive optical components of the infrared and visible ranges, a built-in system of the banknote pattern recognition. Verification in an ultraviolet light and a two- track checking of the paper fluorescence level;
Display	STN, graphical, 256x64 pixels;
Power supply	100-240 VAC, 50/60 Hz;
Consumption current, not more than	0.5-0.25 A;
Operating temperature range.....	+10°C to +35°C;
Air relative humidity at + 25°C.....	40% to 80%;

Atmospheric pressure..... 84 to 107 KPa (630 to 800 mm Hg).

Overall dimensions (not more than):

Height.....	270 mm
Width.....	290 mm
Depth.....	240 mm
Net weight, not more than.....	4.2 kg
Gross weight, not more than.....	5.4 kg
Lifetime*.....	7 years

* – The **DORS** establishes an official seven-year (7 years) lifetime period for the counter provided all the service regulations are observed. Taking into account high quality of the **DORS 750**, its reliability and safety degree, real lifetime of the counter may significantly exceed an official one.

SAFETY PRECAUTIONS!

To ensure long life and reliable operation of the counter, its user shall meet the following operation requirements and observe the belowmentioned safety precautions:

- 1.** The counter rotating parts are potentially hazardous for the user. Therefore, we highly recommend that the user should avoid any jewelry and loose clothes as well as pin their long hair when operating the counter;
- 2.** Avoid getting of any metal object or liquid into the counter;
- 3.** To connect the counter to the power network, use a receptacle with a protective earth contact (**PE**). Location of the receptacle shall provide the user with a direct access to the receptacle;
- 4.** Unplug the counter after work has been completed.
- 5.** If the counter is out of use for a long time, its power switch shall be in the «**O**» position;
- 6.** The device shall be installed on an even horizontal surface;
- 7.** Do not use the counter at an extremely low or high temperature, and avoid humidity as well as its exposition to the direct sunlight;
- 8.** Do not touch the inside parts of the counter if it is connected to the power network;
- 9.** When dealing with the counter installation, mind a negative impact provided by a high level of dust content on the counter operation quality;
- 10.** To avoid any fire or short circuit, do not install the device in places where it may be at risk of a soot or steam impact.

COUNTER DESCRIPTION

Delivery Set:

Banknote counter DORS 750	1pc.
Power cord.....	1pc.
User manual	1 pc.
Package	1 set

CONTROL PANEL



1. Graphical display;
2. **MODE** key for switching the counting modes;
3. **MAN** key for switching **ON/OFF** of the manual start;
4. **ADD** key for switching **ON/OFF** of the summation mode;
5. **BATCH** key for switching on a variable batching mode;
6. Navigation key **UP** ↑ ;
7. Navigation key **DOWN** ↓ ;
8. **SET** key for the menu entry /selection confirmation;
9. **START/CLEAR** key for the start of counting in the mode of manual start / clearing the results.

OPERATING KEYS

2. The **MODE** key for the banknote counting mode selection

The counter may count banknotes in three modes: **COUNT, DENOMINATION, MIX**. To select a mode, use a sequential search by pressing the **MODE** key. The selected mode is shown in the left part of the graphical display table. The mode types:

1. **COUNT** – The mode for simple counting. This mode allows counting of banknotes; the number of the counted banknotes is shown on the display.

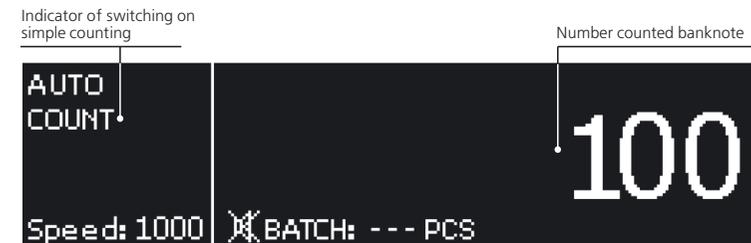


Figure 1 Appearance

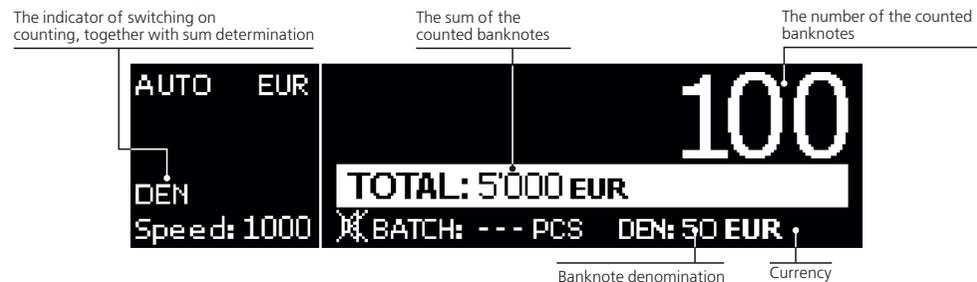


Appearance

1. Screw to adjust thickness of the banknotes being counted;
2. Banknote guides;
3. Hopper;
4. Control panel;
5. Stacker;
6. Stacker wheels;
7. Remote display connector;
8. USB connector for making a personal computer connection;
9. Power switch;
10. Fuse;
11. Power connector.

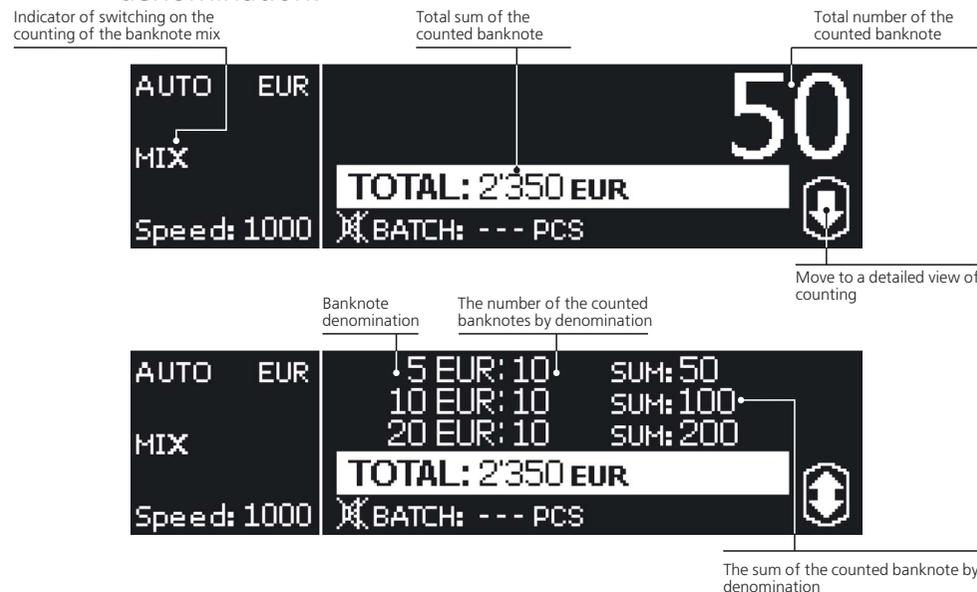


2. **DENOMINATION** – The mode for counting banknotes of the same denomination, together with determination of the sum. The mode for counting banknote of the same denomination, together with detection in the infrared – IR and visible ranges, determination of the total sum of the counted banknotes and determination of the banknotes belonging to the given denomination (denomination is determined by the first banknote in the batch to be counted).



3. **MIX** – The mode for counting a mix of banknotes with different denomination but relating to the same currency, together with detection in the IR and visible ranges and with determination of

- the total sum of the counted banknotes;
- the number of the banknotes and their sum by each denomination.



3 The MAN key to switch over a counting mode (manual/automatic start)

1. The **MAN** key sets the counter in a manual or an automatic startmode.
2. Press the **MAN** key to activate the manual mode. The indicator **MANUAL** on the graphical display (in the top left corner of the left part of the table) appears at the manual start mode activation. To start counting, press the **START/CLEAR** key on the control panel.



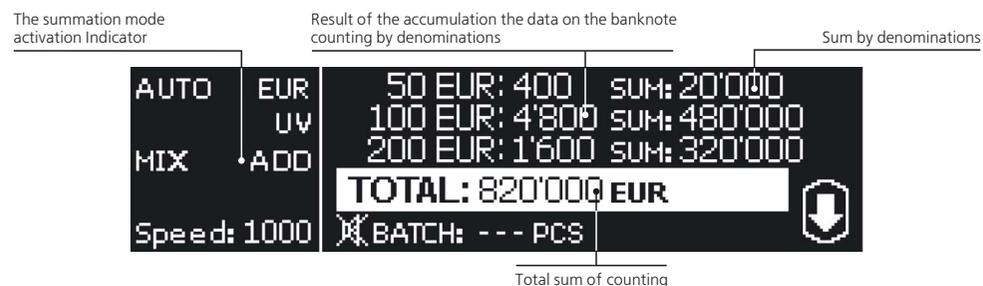
3. Press the **MAN** key to switch off the manual mode. **AUTO** appears on the graphical display, in the top left corner of the left part of the table. The **AUTO** function being activated, the counter starts counting automatically as soon as a banknote gets into the hopper.



4 The ADD key (summation)

The **Sum** mode is used to sum the number of the banknotes being counted by their denominations and determine their total sum. Moreover, the newly-counted number will be added to the one counted before.

Press the **ADD** key to switch on the mode of summation. A repeated pressing of the key switches this mode off. To clean the results of summing, press the **START/CLEAR** key and hold it while the stacker and the hopper are empty.

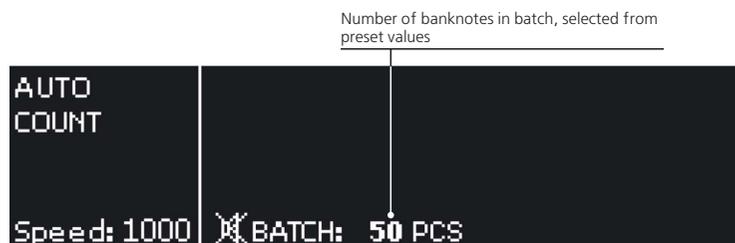


5 The BATCH key for setting a batch size

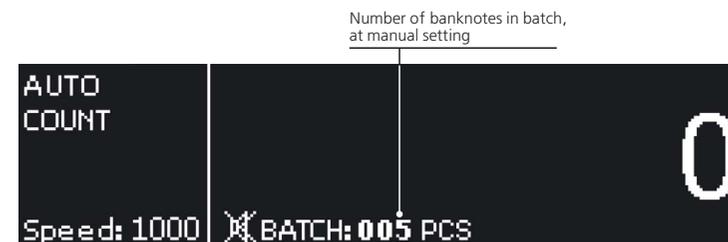
You may set the required batch size from 1 to 999 banknotes. When counting of the set banknote number is over, the device stops, indicates the total number of the counted banknotes and gives an audio signal (if the latter is switched on). If there is set the number exceeding 100 banknotes, the counter stops after counting another 100 banknotes and resumes counting after the banknotes have been removed from the stacker. This function is available only for the **COUNT** and **DENOMINATION** modes.

To set the required number of banknotes, use two methods:

1. Selection among the preset values – multiple pressing of the **BATCH** key results in a circular search: 5-10-25-50-100 banknotes.

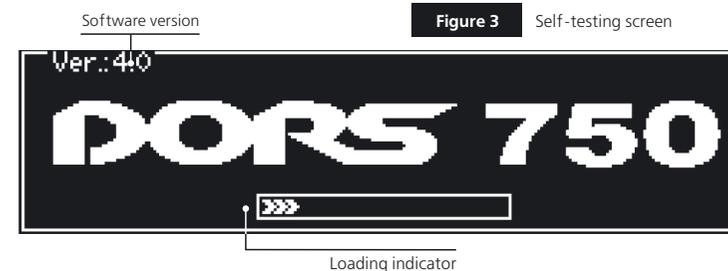


2. Holding of the **BATCH** key during 3 sec. results in a manual setting of the required number. In this mode, use the navigation keys **↑** and **↓** to set the required value for the edited digit (the underlined one). To move to the next digit, use the **SET** key. To exit from the manual setting mode, press the **BATCH** key.



OPERATION

1. Make sure about taking into account the precautions specified in the relevant section of the manual;
2. Use a power cord to connect the counter to the power network.
3. Use a power switch **9** to switch on the counter (**see Fig. 1**). Switching on starts self-testing – the following image (**see Fig. 3**) will appear on the graphical display **1** (**see Fig. 2**).



Make sure about movement of the loading indicator during selftesting (the arrow in the bottom part of the image) and rotation of the stacker wheels **6** (**see Fig. 1**) and the hopper rollers **3** (**see Fig. 1**). After self-testing is completed, an audio signal is given and the display shows the following (**see Fig. 4**):

Figure 4 Ready for work screen



After that, the counter device is ready for counting banknotes at the following (factory) settings*.

- Interface language – Russian;
 - Currency – AUTO;
 - Counting mode – **COUNT**;
 - Start mode – automatic;
 - Summation mode – switched off;
 - Batching – at the choice;
 - Counting speed – 1000 banknotes per minute;
 - UV-fluorescence inspection – switched off;
 - Display backlight brightness – middle;
 - Audio signals – switched off;
 - Mode of banknote orientation checking – switched off;
 - Stacker capacity – 100 banknotes.
4. Adjust the gap of the banknote feed system. The manufacturer presets the required gap taking into account peculiarities of the currency to be counted. However, if the counter often stops during counting, and the display shows the error messages «**DOUBLE ERROR**» and «**CHAIN ERROR**», it is necessary to turn slightly clockwise «-» the screw to adjust thickness of the banknotes being counted ① (see Fig. 1) (to reduce the gap). If either «**NO BANKNOTE**» or «**LARGE ANGLE ERROR**» appears on the display after the counter stops, it is necessary to turn slightly counterclockwise «+» the screw to adjust thickness of the banknotes being counted ① (see Fig. 1) (to increase the gap). The gap shall allow one banknote to pass freely between the rollers but prevent two stuck banknotes from passing between them.
5. Install the banknote guides according to the length of the longest banknote in the batch being counted, level the batch edges and place it carefully in the middle of the hopper avoiding

its skew.

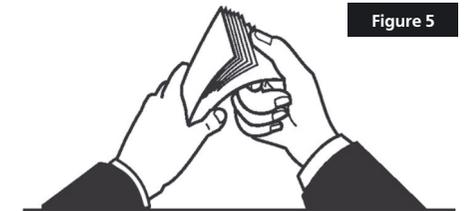
The counter will start operation automatically. Counting stops after the number of the banknotes corresponding to the stacker limit has been counted. The stacker limit may be set equal to 50 or 100 banknotes. After the banknotes have been removed from the stacker, the counter automatically resumes operation.

6. In case of an error, follow recommendations of the **ERROR MESSAGES** Section to eliminate the error.

Note:

Prepare the banknotes to be counted as shown in

Fig. 5; remove the banknotes that are torn, wet, grease or dirty.



- * – The factory settings may be changed according to the user's requirements.

MENU SETUP

To enter the user settings menu, hold the **SET** key on the control panel during 1 s (see Fig.2). After entering the menu, the left part of the image remains unchanged, and the submenu appears in the right part. A schematic image of the navigation keys at the right edge of the display indicates that there will be a jump to another submenu upon pressing the corresponding key.

To switch between the submenu settings, use the **↑** and **↓** keys.

To enter the submenu, press the **SET** key. Having selected the required setting with the **↑** and **↓** keys, press the **SET** key to enter the settings menu. To exit the user settings menu, hold the **SET** key during 1 s. After you exit the menu, the graphical display will show the selected settings.

1. The interface language selection.

Selection of the interface language makes it possible to select the preferred language of the menu displaying. The counter allows setting on one of 3 variants of the interface language: Russian, English and Chinese.



2. The banknote counting speed selection.

The graphical display shows a digital value of the counting speed expressed in banknotes per minute. The counter makes possible operation with three values of the counting speed – **600, 1,000, 1,500 banknotes per minute.**



3. Selection of the ultraviolet fluorescence inspection mode (UV – inspection) «UV»

If inspection is switched on, an error message will appear during the banknote counting in case a banknote with an increased UV fluorescence has been detected (for example, a banknote printed on plain not banking paper), and counting will stop.



4. Selection of the currency to be counted «CURRENCY».

It allows setting of the type of the currency to be counted. Before counting starts, set (obligatory) the corresponding type of the currency to be counted. In case of **AUTO** (factory setting) - an automatic currency selection, the banknotes are recognized by the first banknote detected in the batch, and the icon **RUB** will not be shown in the left menu.



5. Banknote orientation inspection «ORIENTATION».

When counting in this mode, orientation of the banknotes of the batch to be counted is checked on correspondence to the first detected banknote. In case of mismatching, counting stops and an error message appears (inspection of the banknote orientation is available only in the **DENOMINATION** mode).



6. Sound «SOUND».

The mode being switched on, the executed operations are accompanied by the short sound signals.



7. Brightness selection of the graphical display backlight «BRIGHTNESS».

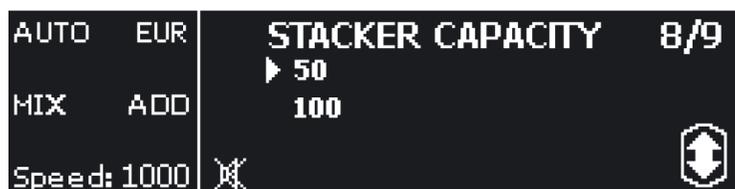
It allows setting of three levels of brightness for the graphical display backlight, thus providing good perception of the image on

the display at various possible levels of illumination.



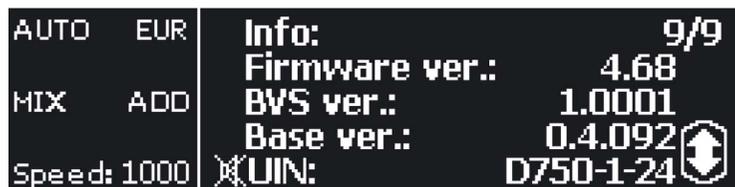
8. The stacker capacity selection «STACKER LIMIT».

It allows setting of the stacker capacity in correspondence with the definite number of banknotes. If the stacker capacity changes, the «Please, reboot» message appears on the screen. The counter may resume its operation after switching off of the device and its subsequent switching on.



9. INFORMATION.

Technical information for the service center staff.



ERROR MESSAGES

In case of an error, the counter stops automatically, gives an audio signal (at the sound switched on) and an error message appears on the display. See tables 1 and 1a «Error messages» to determine the error cause and its elimination method. Sometimes, in case of a problem, the error code is not displayed or it differs from the codes in tables 1 and 1a. In this case, refer to table 2 «Troubleshooting» to determine the problem elimination method.

Table 1. Error messages that appear upon switching on the counter

ERROR MESSAGES	CAUSE	OPERATOR'S ACTIONS
NOTES IN HOPPER	There were banknotes in the hopper at the moment of energizing the device or it is a hopper sensor malfunction.	Remove the banknotes from the hopper or clean the sensor. In case of a repeated error, call the service center.
NOTES IN STACKER	There were banknotes in the stacker at the moment of energizing the device or it is a stacker sensor malfunction.	Remove the banknotes from the stacker or clean the sensor. In case of a repeated error, call the service center.
SYNCHRO ERROR	An error of the pulse sensor or of the path motor.	Switch off the counter*, and then switch it on again. In case of a repeated error, call the service center.
CALIBRATION ERROR	An error of the sensors calibration.	Switch off the counter*, and then switch it on again. In case of a repeated error, call the service center.
COMM ERROR	Communication error.	Switch off the counter*, and then switch it on again. In case of a repeated error, call the service center.

Table 1a. Error messages that appear during counting

ERROR MESSAGES	CAUSE	OPERATOR'S ACTIONS
NOTES IN STACKER	There were banknotes in the stacker at the moment of energizing the device or it is a hopper sensor malfunction.	Remove the banknotes from the stacker or clean the sensor. In case of a repeated error, call the service center.
HOPPER IS EMPTY	At the counter operating in a manual start mode and pressing the START/CLEAR key, there are no banknotes in the hopper.	Add banknotes to the hopper. In case of a repeated error, call the service center.
PATH CLEARING	A banknote or some foreign object blocks the sensors.	Remove the banknotes from the stacker. After 1-2 s, the counter automatically rotates the path to get rid of the banknote blocking the path. If the banknote is not removed automatically, switch off the counter, remove the banknote manually and switch the counter on again. In case of a repeated error, remove the banknotes from the hopper. Then remove the banknotes from the stacker. Wait till self-cleaning is completed.
DOUBLE ERROR	A doubled banknote or a very dark banknote has been detected.	Remove the banknote from the stacker. Check the banknote feeder gap for operation with thinner banknotes, and if necessary, adjust it. To get the required gap, turn screw ❶ (see Fig.1) clockwise.
«UV» ERROR	There is detected a banknote with an increased fluorescence level at the activated UV-mode.	Remove the banknote.
«LENGTH» ERROR	A banknote length differs by more than 10% from the length of the previous one.	Remove the banknote different in size.
PLEASE REBOOT	Appears after changing the stacker limit and exit from the menu.	Switch off the counter, and then switch it on again*.

Table 1a. Error messages that appear during counting

ERROR MESSAGES	CAUSE	OPERATOR'S ACTIONS
HALF ERROR	There is detected a folded banknote or a damaged one.	Remove the banknote.
LARGE ANGLE ERROR	The banknote skew angle exceeds $\pm 15^\circ$.	Set the guides on a banknote wide side. Place the banknotes into the hopper so that they could touch the stacker back along the whole width.
ORIENT ERROR	The banknote does not correspond to the specified orientation.	Turn the banknote over in compliance with orientation of the bottom banknote in the stacker.
VALIDATION ERROR	The banknote is not in compliance with the main distinguishing features of the specified currency.	Remove the banknote.
WIDTH ERROR	A banknote width differs by more than 10% from the length of the previous one.	Remove the banknote.
CHAIN ERROR	A continuous chain (too long banknotes, an interval between the banknotes is too short). It may occur during a batch formation if an excess banknote has been caught. In this case, no gap adjustment shall be made as it makes no impact on the problem solution.	Adjust the banknote feeder gap for operation with thinner banknotes. Remove the banknotes that got stuck together. To get the required gap, turn screw ❶ (Fig. 1) clockwise.
JAM ERROR	A banknote jam in the path (blocking of the path rotation).	Switch the counter off *. Carefully eliminate the jam in a manual way trying to avoid any banknote damage. Switch the counter on.
ADD NOTE	An insufficient number of banknotes for the batch specified for counting.	Place additional banknotes into the hopper.
FULL	The number of the counted banknotes exceeds 9999.	Press the START/CLEAR key to reset the display indications. Remove the banknotes from the stacker.
SERVICE	Maintenance is required.	Switch off the counter, and then switch it on again*. To continue operation, press the START/CLEAR key. If it appears again after rebooting, call the service center.
NO BANKNOTE	It is impossible to load the banknotes from the hopper.	Set the guides on a banknote wide side. If necessary, adjust the banknote feeder gap («+» - gap increase) for operation with thicker banknotes. To get the required gap, turn screw ❶ (Fig. 1) either contraclockwise or clockwise.
DIFFERENT DENOMINATION	Detection of a banknote with a different denomination in the DENOMINATION mode.	Remove the banknote.
DIFFERENT CURRENCY	Detection of a banknote of some other currency in the MIX and DENOMINATION modes.	Remove the banknote.
INTERNAL ERROR	Detection of an undocumented error.	Remove all the banknotes from the stacker and/or reboot the counter; if the counter still does not operate properly, call the service center.

* - The counter may be switched on again not sooner than 10 seconds after its switching off.

Note:

To cancel an error message, remove the banknotes from the stacker. The counter resumes operation automatically. To avoid a counting error in case of fault, a repeated banknote counting is recommended.

TROUBLESHOOTING

Table 2. Troubleshooting

FAILURE	ELIMINATION METHOD
The counter fails to switch on.	Make sure about the counter connection to the power supply and the power cord plugging into the connector on the counter back cover. Make sure that the power switch is in position «I». If these terms are observed but the counter fails to switch on, consult the service division.
The display shows a message not described in the «Error messages» table.	Switch the counter off. Consult the service division.

COUNTER MAINTENANCE

A preventive maintenance requiring partial disassembling of the counter by a service engineer is recommended every 90 days. In case of an intensive use (more than one shift a day), the abovementioned maintenance should be more frequent.

On a daily basis:

1. Switch off the banknote counter if you do not use it.
2. Wipe the counter external parts with a dry clean lint-free tissue.

TRANSPORTATION AND STORAGE

Transport the counter in the manufacturer's package by car or by railway (in a covered transport vehicle), by air - in the pressurized modules at the temperature of -20°C to $+50^\circ\text{C}$, air relative humidity up to 98% at $+25^\circ\text{C}$ and the air pressure 84 to 107 kPa (630 to 800mm Hg).

Store the counter (in the manufacturer's package) in a heated and ventilated storage room, at the temperature $+5^\circ\text{C}$ to $+40^\circ\text{C}$ and a relative humidity not exceeding 80% at $+25^\circ\text{C}$.

SUPPORT AND WARRANTY

The «**DORS brand products**» supplied to some country are manufactured taking into account operation conditions in that country. To make sure about it, please, check availability of the official conformity marks on the product and its package.

In case of some malfunctioning of your counter please apply to your supplier.

To avoid any misunderstanding, we earnestly ask you to study properly the terms and conditions of the counter operation, its transportation and storage, the warranty conditions, and check correctness of filling in of a warranty card. The warranty card is valid only upon availability of the model and the serial number of the counter as well as the date of its sale that shall be well-defined and given correctly; the seals of the selling firm and the buyer's signature shall be distinct. The counter serial number and its model shall correspond to the number and the model indicated in the warranty card.

If these rules are violated or if the warranty card data are changed, erased or rewritten, the card is declared invalid. In this case, we recommend that you should contact the seller to get a new warranty card corresponding to the above-mentioned terms, or submit the sales and cash receipts or the other documents confirming the fact and the date of selling the counter. In compliance with the Russian Federation legislation concerning the consumers' rights protection, if it is impossible to fix the sale date, the warranty period starts from the date of the counter manufacturing.

All the warranty terms are valid within the legislation framework concerning the consumers' rights protection and are regulated by the legislation of the country on the territory of which they were given. However, the **DORS** reserves the right not to provide the product warranty maintenance if the below-mentioned terms are not observed.

WARRANTY CONDITIONS

1. The Manufacturer's Warranty issued by the Manufacturer's authorized service centers applies only to the models assigned by DORS for supply and sale on the territory of the CIS countries, purchased in CIS and certified on their correspondence to the standards of the countries where the warranty maintenance is provided.
2. The Manufacturer gives a warranty period that is valid during 12 months since the date of the counter sale if the given terms are not violated:
3. The Warranty does not apply to the below-mentioned accessories of the counter if their replacement is envisaged by the counter design and not related to the counter disassembling:
 - a. Fuse;
 - b. Power cord;
 - c. User manual.
4. The Manufacturer does not bear any product warranty obligations in the following cases:
 - a. If the counter was not used in compliance with its designated purpose.
 - b. If the terms and conditions of the counter operation and installation given in the user manual were violated.
 - c. If the counter has traces of attempts of unqualified repair.
 - d. If the defect results from changes in the counter design or in the circuit that are not envisaged by the Manufacturer.
 - e. If the defect results from the force majeure circumstances, accidents, intended or careless acts (failures to act) of the consumer or the third party.
 - f. If the detected damages result from getting into the counter of some foreign objects, substances, liquids, insects.
5. the Warranty does not apply to the following faults of the counter:
 - a. the mechanical damages done after the counter was handed over to the consumer;

b. the damages resulting from non-conformity with the parameter standards of the power, telecommunication, cable networks and other similar external factors;

6. The **DORS** bears no responsibility for a possible direct or indirect damage done by the **DORS** products to people, domestic animals and property if this damage results from nonobservance of the terms and conditions of the counter operation and installation, intended or careless acts (failures to act) of the consumer or the third party or the force majeure circumstances.